SECONDARY ECONOMIC IMPACTS OF COASTAL SPILLS

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INTRODUCTION

There exists a gap between the full suite of economic impacts coastal spills impose on local communities and the economic concerns that receive most of the attention during pre-spill planning, cleanup operations, and post-spill analyses. The spill-response infrastructure focuses primarily on containing and cleaning up the spilled material, minimizing the impacts on fishing and other industries with a direct relationship to coastal resources, allocating cleanup costs, and calculating natural-resource damages. Local communities share these concerns but can experience additional acute economic shocks during the spill and cleanup, as well as chronic residual effects. These *secondary economic impacts* can materialize, as the spill, cleanup activities, and post-cleanup events (1) disrupt local activities and relationships; (2) consume or disrupt local services; (3) degrade or destroy local assets, including physical, financial, and social capital; and (4) increase uncertainty and risk for the local community regarding the environment, human health, economic prospects, and the stability of families, businesses, and organizations.

(1) DISRUPTION OF LOCAL ACTIVITIES AND RELATIONSHIPS

A significant spill often triggers the intrusion of outside institutions and individuals into the local community, disrupting local activities and relationships, and inducing local individuals, families, businesses, governments, and non-government organizations to do things they otherwise would not do. Some may see these changes as advantageous: workers may have an opportunity to earn higher wages as part of a cleanup crew, for example. Some cite these changes to substantiate claims that a spill/cleanup improves economic conditions. After the *Kyowa Violet* spilled oil on the Micronesian island of Yap in 2002, for example, a representative of the responsible party cited the cleanup jobs that were created for local residents and suggested these could be counted as economic benefits because the workers would otherwise be unemployed (Dunford 2004).

This view ignores the costs of the disruption. Although industrialized perspectives might allow one to conclude the Yapese who cleaned oiled beaches were otherwise unemployed, within their own cultural context the situation was far different. Absent the spill, they would have gone fishing to feed their families, instructed children, maintained their homes, sustained social relationships, or engaged in other important activities. The spill caused these activities to be delayed or left undone. Similarly, the *Exxon Valdez* spill disrupted the activities of local residents and communities: the elders in Native Alaskan communities found their authority undermined as youth no longer were interested in participating in traditional hunting and fishing activities (Fall et al. 2001).

Some assert that people and communities should receive compensation only for time spent and expenses incurred directly working on spill-related activities, i.e., for the services rendered to the responsible party (White 2003). From the perspective of those whose lives have been disrupted, however, full compensation requires accounting for what the people and communities give up because of the spill's disruptive effects. Many people cite the disruption of their lives as the most intense part of living in a community near a spill. Insofar as full compensation is unlikely to be forthcoming in the foreseeable future, or not at all, prevention and mitigation of these losses should receive greater attention during spill-response planning and implementation.

(2) CONSUMPTION OR DISRUPTION OF LOCAL SERVICES

When a significant spill occurs, public agencies stop providing one set of services and, instead, provide services to support cleanup efforts. Sometimes, when this occurs, citizens feel they have been mugged twice, first when they don't receive the normal community services they have paid for, and again when they see the responsible party benefiting from the consumption of community services without providing full compensation. This feeling can intensify through a feedback loop, in which citizens' distress over the spill's impacts on their community increases their demands for ameliorative services and, at the same time, the spill has diminished the community's ability to provide them.

In the case of Yap, most communication on the island occurs in the local language through personal contact, and Yapese society is highly structured, so who says what to whom can be very important. Chiefs oversee intra- and inter-clan relationships to ensure peace and harmony and, when the *Kyowa Violet* spill occurred, the responsible party opted to rely on them to oversee spill-related communications. As each chief attended to spill-related activities, he was diverted from attending to other business. Representatives of the responsible party, however, contested the claim that it had consumed communication and related services provided by the chiefs and others, as well as the claim that the community had been harmed insofar as the spill and cleanup caused the community to go without services that it otherwise would have enjoyed.

Spills can have similar effects on local officials in the U.S. and other industrialized countries. Members of the Cordova City Council believed the *Exxon Valdez* oil spill forever altered the political landscape, with the influence of some groups rising while that of others declined. These shifts occurred in part as the city council spent uncounted hours addressing issues that had no direct connection to the spill but which council members fervently believed were inseparable from it. Exxon, however, resisted the city's efforts to secure compensation for these impacts, asserting that the only compensable impacts on the city were those for which it could document a direct connection to the spill.

Understandably, people who perceive that their community has been mugged and the perpetrator has gone free feel both harmed and angry. It also is understandable that some of the anger may be directed at spill-response managers insofar as people perceive that they are standing aside and watching, perhaps even condoning, the mugging.

(3) DEGRADATION OR DESTRUCTION OF LOCAL ASSETS, INCLUDING PHYSICAL, FINANCIAL, AND SOCIAL CAPITAL

A community may be compensated when a spill directly degrades the value of a physical asset or directly depletes its financial assets. Sometimes the impacts on assets are less direct and do not qualify for automatic compensation, however. A mental health clinic may incur extra wear and tear as it attends to concerns, such as marital stress, that indirectly arise from the spill. Families, businesses, and cities may see their financial resources erode as the spill disrupts normal business. Spills also can erode social capital, such as trust and interpersonal relationships (Ritchie and Gill 2004). Reduction in physical, financial, or social capital diminishes economic wealth and prospects for workers, families, businesses, organizations, governments and whole communities. Efforts to secure compensation, especially when involving protracted litigation, can erode local assets even further (Marshall et al. 2004; and Ritchie and Gill 2004).

Again, the *Kyowa Violet* spill illustrates these impacts. The spilled oil moved inside the reef, contaminating the water, soil, shoreline, and mangroves. Fishing and other activities were closed for almost 18 months. The consequences extended far beyond the loss of subsistence food. In Yapese society, fish from the lagoon underpins the ability of the citizens of the affected area to sustain complex economic, cultural, and political relationships. By disrupting these relationships, the spill has torn the essential fabric that holds the community together, and the society's ability to repair the tear remains to be seen. Similar effects occur with other spills. Interviews of Native Alaskans, conducted in 1998, almost ten years after the spill, found that 83.9 percent "believed that the traditional way of life had been injured by the *Exxon Valdez* oil spill" (Fall et al. 2001).

Typically, only those things that can be readily measured receive the attention of spill-response planning and management (White 2000; Washington Department of Ecology 2003; and Pierce 2001). Being hard to measure and often intangible, impacts on social, financial, and other capital are overlooked because they cannot be rigorously documented. Such an approach can leave a community with Band Aids to control the superficial bleeding, while internal hemorrhaging goes unabated.

(4) INCREASE IN UNCERTAINTY AND RISK FOR THE LOCAL COMMUNITY REGARDING THE ENVIRONMENT, HUMAN HEALTH, ECONOMIC PROSPECTS, AND THE STABILITY OF FAMILIES, BUSINESSES, AND ORGANIZATIONS

The spill of a hazardous material generates uncertainty about its consequences, and risk that the consequences will be undesirable. Significant spills can increase uncertainty and risk regarding environmental health (Short et al. 2003), human health (Ott 2005; Lyons et al. 1999), economic prospects (Impact Assessment, Inc. 1990), and the stability of families, businesses, and organizations (Ritchie and Gill 2004).

It is not uncommon for spill-response managers to want to close the book on the uncertainty and risk generated by a spill, even though, for those in nearby communities the uncertainty and risk will remain an important part of their daily lives for the foreseeable future. Seventeen months after the *Kyowa Violet* spill, for example, the

government ended the ban on fishing in the oiled waters, asserting the health risk associated with eating fish from the area had ended. With the declaration, the responsible party no longer faced an obligation to provide affected families with food from other sources. Considerable contrary evidence—including visible oil in the area, plus studies showing the unexpected persistence of spilled oil (Short et al. 2007)—raises doubts for families living in the area and causes them to conclude they continue to face some risk every time they feed fish from the lagoon to their children.

All else equal, an increase in uncertainty and risk constitutes a decrease in economic well-being for those who must cope with the uncertainty or bear the risk. Thus, the *Kyowa Violet* spill continues to impose economic harm on local residents, regardless of the pronouncement by the government's spill-response managers. The same is true elsewhere. People are harmed as long as they bear a burden stemming from the uncertainty and risk generated by the spill of hazardous material, and efforts by spill-response planners and managers to close the books on a spill as quickly as possible will not necessarily make this burden disappear.

CONCLUSION

There can be no doubt that coastal spills can cause social and economic harm extending far beyond those typically recognized by current compensation schemes, natural resource damage assessments, and the primary concerns of many spill-response planners and managers. These *secondary economic impacts* are important when they first materialize, and their significance can grow, perhaps explosively, when residents of communities near a spill perceive that these impacts are not being addressed by those who generated the impacts or are responsible for mitigating them. Sometimes, these impacts are aggravated when people realize that the harm being imposed on them stems, in part, from habits that leave spill-response institutions unaware of or indifferent to impacts that, in their minds, are of premier importance.

We offer an analytical framework that distinguishes among four types of *secondary economic impacts*. We believe this framework can help planners, spill-response managers, and members of spill-affected communities identify, understand, measure these impacts, and use this information to take meaningful steps to diminish the impacts of future spills.

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